

# DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

## INDIANAPOLIS

\* Not For Public View

### OFFICE MEMORANDUM

Date: March 7, 2019

To: Thomas Kreke  
Solid Waste Permits Section

Thru: John A. Guerrettaz, LPG  
Chief, Geology Section

From: Michael Elliott, LPG  
Geology Section

Subject: *Response to Request for Additional Information and Addendum No. 2*  
Dated February 15, 2019  
VFC # 82698641  
Duke Energy - Gallagher Generating Station - Ash Pond System  
Floyd County  
SW Program ID 22-UP-01

#### **Introduction**

I reviewed the *Response to Request for Additional Information and Addendum No. 2* dated February 15, 2019 (response). IDEM received the response on February 15, 2019, from Mr. George T. Hamrick, Duke Energy's Senior Vice President of Coal Combustion Products. Mr. Hamrick submitted the response to address IDEM's *Request for Additional Information* (RAI) dated December 17, 2018 (VFC # 82664063), which is the second RAI relating to the *Proposed Closure and Post-Closure Plans* (C/PCP) dated December 16, 2017 (VFC # 80398571).

#### **Summary**

The response adequately replies to Items 1, 2, and 4 from the Geology Enclosure of the RAI; therefore, the facility's ground water monitoring program is acceptable. The response's information regarding Item 3 of the Geology Enclosure documents that waste in the Primary Pond exists in contact with the ground water, but does not provide similar information to evaluate the remaining closure units. The Geology Section had envisioned that the facility's response to Item 3 would provide similar information for each of the closure units. Despite the limited reply to Item 3, I was able to use available data from the C/PCP submittals to determine whether coal ash wastes from the six units addressed by the C/PCP have been in contact with the ground water. I describe my findings on this matter in the Details portion of this memorandum.

#### **Details**

The facility provides a limited reply to Item 3. Specifically, the reply only provides data for the Primary Pond and limits data to March 2018 for seasonal high water table elevations, and August 2017 for seasonal low water table elevations. The facility does

\* The opinions in this memorandum are intended to advise the recipient in his or her decision-making process. They are based on the information available to and reviewed by me at the time of writing.

not give reasons for only providing data associated with the Primary Pond or for not accounting for all available ground water elevation data. However, the reply information does document that the Primary Pond's coal combustion residual (CCR) waste is in contact with the ground water.

The facility may have limited their reply to the Primary Pond because of the three out of six units subject to the U.S. EPA's CCR rule (40 CFR 257), the Primary Pond is the only CCR unit identified in the C/PCP for closure in-place. The C/PCP proposes a facility-defined "closure by removal" for the other two CCR units, Ash Pond A and the Secondary Settling Basin (SSB). However, it is my understanding that IDEM considers the SSB closed in-place due to the facility's inability to demonstrate removal all the wastes and an additional one foot of soil according to the facility "closure by removal" plan during the excavation.

A check of available site-wide, historic ground water elevation data finds records of higher and lower ground water elevations than those provided in the facility's response. These records are useful for evaluating whether waste is in contact with the ground water at the facility's coal ash closure units. I reviewed all the facility-reported, ground water and pond elevation data available in the Office of Land Quality's SampDB database and compiled a summary table of the available historic high and low elevations. I have attached a copy of the summary table to this memorandum. The summary table includes columns that provide the number of records available and the date range of the data for each monitoring location.

A comparison of the elevations in the summary table versus the available C/PCP related historic boring logs and cross sectional drawings documents that the North Ash Pond, Primary Pond, Primary Pond Ash Fill, and Pond A have waste in contact with the ground water. The Coal Pile Ash Fill waste setting is less clear, in that the water table beneath the unit has an apparent steep slope from west to east as it approaches the Ohio River. As suggested by the elevation records from ground water monitoring wells MW-A311 at its north end and MW-A307 at its south end, the unit's waste is above the ground water. However, ground water monitoring well MW-A309 to its west suggests the possibility that waste on the western quarter of the unit could be in ground water. As for the Secondary Settling Basin, the facility removed much of the waste, but any remaining residual waste could be in contact with the ground water.

Accurate historically high water table elevation(s) and the base elevation(s) of the CCR at each closure unit are necessary for determining the approximate volume of CCR that has the potential for ground water to infiltrate and saturate. Such infiltration and saturation could cause continuing releases from this contaminant source.

### **Recommendations**

As Ms. Rebecca Joniskan, Permit Branch Chief, requested during the internal meeting on February 20, 2019, the Details portion of this memorandum provides an analysis of whether coal ash wastes in the facility's CCR and non-CCR closure units are in contact with the ground water. Please consider the information in the Details portion of this

memorandum, the paragraph below, and the comments you receive from the other remaining technical reviewers when drafting a response to the facility.

We recommend that IDEM approve the ground water monitoring program, subject to requirements the Geology Section will develop. Please send the Geology Section a request for technical evaluation for the development of ground water monitoring requirements for inclusion in the closure plan/post-closure plan approval letter when upper management acknowledges the need for these approval conditions.

Geology Task ID # 38153

Attachment: Ground Water Elevation Summary Table

cc: VFC\Duke Energy – Gallagher\Technical Review\Geology  
Daniela Klesmith, Engineering Technical Advisor  
Shyamala Raman, Chief, Engineering Section  
Rebecca Joniskan, Permits Branch Chief, OLQ, IDEM  
Troy Weaver, Geology Section, OLQ, IDEM  
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Ground Water Elevation Summary Table  
Duke Energy Indiana, Gallagher Generating Station  
New Albany, Floyd County, Indiana  
SW Program ID 22-UP-01

This summary table is based upon and limited by the facility reported elevation data available in OLO's SampDB database on February 28, 2019.

Ground Water & Pond Elevations from Available Data				Ground Water & Pond Elevations from Available Data		
Monitoring Point	Historic High	Date	Historic Low	Date	# of Available Data	Location / Comment
Ash Pond A	439.5	9/26/2016	437.85	9/18/2018	5	Pond surface water elevation
Secondary Pond	426.44	3/2/2015	426.22	3/1/2016	2	Pond surface water elevation
B-8	438.52	9/18/2018	434.73	3/1/2016	4	Ash Pond A - near SW end
MW-201	431.1	3/16/2011	423.77	9/19/2017	18	RWS I & Ash Pond B - N end
MW-202	431.57	3/16/2011	419.37	9/1/2016	25	RWS I / Ash Ponds A & B - E corner
MW-203	431.19	3/16/2011	420.24	9/19/2017	21	RWS I & Ash Pond B - E end
MW-204	430.58	3/16/2011	417.81	9/19/2017	21	RWS I & Ash Pond B - SE corner
MW-205	429.45	3/16/2011	417.97	9/19/2017	22	RWS I & Ash Pond B - S end
MW-A301	414.28	3/6/2017	395.64	12/14/2015	8	Coal Pile Ash Fill - SE corner
MW-A302	420.04	3/6/2017	412.38	8/1/2016	10	Secondary Settling Pond - E end
MW-A303	429.28	3/21/2016	425.62	8/1/2016	7	Ash Pond A - S end
MW-A304	424.74	3/21/2016	416.99	8/1/2016	7	Secondary Settling Pond - SE corner
MW-A305	423.07	3/6/2017	416.05	3/1/2016	7	Ash Pond A - E end
MW-A306	442.7	3/21/2016	438.24	9/18/2018	7	Primary Pond Ash Fill - S end (abandoned 2019)
MW-A307	418.16	3/6/2017	411.15	3/19/2018	7	Ash Pond A - NE corner
MW-A308	436.21	8/1/2016	434.51	12/13/2016	7	Primary Pond Ash Fill - NW corner
MW-A309	439.16	8/1/2016	431.77	9/19/2018	7	Primary Pond - E end
MW-A310	414.12	3/6/2017	383.23	8/1/2016	6	Coal Pile Ash Fill - E end (abandoned 8/2018)
MW-A310S	418.79	3/6/2017	387.15	8/1/2016	6	Coal Pile Ash Fill - E end (abandoned 8/2018)
MW-A311	413.67	3/6/2017	387.22	8/1/2016	4	Coal Pile Ash Fill - N end (abandoned 8/2018)
MW-A312	442.16	3/21/2016	438.9	12/13/2016	7	North Ash Pond - W interior
MW-A313	440.66	3/21/2016	436.87	12/13/2016	7	North Ash Pond - E interior
MW-A314	409.79	3/6/2017	383.66	12/14/2015	5	North Ash Pond - NE corner
MW-A315R	410.16	3/6/2017	404.82	12/13/2016	7	Entrance road - N of power plant
MW-A316	440.24	8/1/2016	432.93	3/19/2018	7	Primary Pond - NW side (abandoned 2019)
MW-A317	441.04	3/21/2016	435.01	9/19/2018	7	Primary Pond - E end
MW-A318	439.54	8/1/2016	431.47	9/19/2018	7	Ash Pond A - N end
MW-A319	398.9	9/18/2018	388.9	9/18/2018	1	Secondary Settling Basin - NE corner (installed 3/2018)
MW-A321	400.3	9/18/2018	400.3	9/18/2018	1	Coal Ash Pile Fill - NE corner (installed 6/2018)
MW-A322	420.51	9/18/2018	420.51	9/18/2018	1	RWS I & Ash Pond B - SE corner (installed 6/2018)
P-101	417.03	3/19/2018	411.46	9/9/2010	17	RWS I & Ash Pond B - NW corner
P-107	414.89	3/6/2017	411.32	9/9/2010	16	RWS I & Ash Pond B - SW corner
PZ-18-1	398.76	9/18/2018	399.76	9/18/2018	1	S end of power plant (installed 5/2018)
PZ-18-2	398.11	9/18/2018	398.11	9/18/2018	1	N of power plant (installed 5/2018)
PZ-18-3	411.22	9/18/2018	411.22	9/18/2018	1	Entrance Road - N of power plant (installed 5/2018)
PZ-18-4	422.94	9/18/2018	422.94	9/18/2018	1	RWS I & ASH Pond B - E end (installed 5/2018)

Summary table prepared by:  
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Geology Section, Permits Branch, OLO, IDEM